

GenCore version 5.1.3
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OM nucleic - nucleic search, using sw model

Run on: February 16, 2003, 15:49:44 : Search time 215.022 Seconds
(without alignments)
14704.597 Million cell updates/sec

Title: US-09-497-967-5

Perfect score: 1404

Sequence: 1 atgaagaacaacatcctggt.....tgatcttactacctgctg 1404

Scoring table: IDENTITY_NUC

Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0

Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%

Maximum Match 100%

Listing first 45 summaries

Database :

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2: /SID22/gcgdata/geneseq/geneseq-emb1/NA1981.DAT.*
3: /SID22/gcgdata/geneseq/geneseq-emb1/NA1982.DAT.*
4: /SID22/gcgdata/geneseq/geneseq-emb1/NA1983.DAT.*
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21: /SID22/gcgdata/geneseq/geneseq-emb1/NA2000.DAT.*
22: /SID22/gcgdata/geneseq/geneseq-emb1/NA2001A.DAT.*
23: /SID22/gcgdata/geneseq/geneseq-emb1/NA2001B.DAT.*
24: /SID22/gcgdata/geneseq/geneseq-emb1/NA2002.DAT.*

Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

Result No.	Score	Query Match	Length	ID	Description
1	1404	100.0	1404	21	AAA97040
2	1404	100.0	1410	21	AAA97089
3	1400.8	99.8	1404	21	AAA97065
4	782.6	55.7	1404	21	AAA97038
5	782.6	55.7	1404	21	AAA52136
6	782.6	55.7	1410	21	AAA97060
7	138	9.8	138	21	AAA97075
8	123	8.8	123	21	AAA97076
9	105	7.5	117	21	AAA97071
					55kd i-antigen syn
					Synthetic I. Multi
					Synthetic 55kd i-a
					55kd i-antigen nuc
					55 kda i-antigen g
					55kd i-antigen cod
					G5 synthetic gene
					G5 synthetic gene
					G5 synthetic gene

C	10	104	7.4	104	21	AAA97072	G5 synthetic gene
	11	100	7.1	100	21	AAA97073	G5 synthetic gene
C	12	100	7.1	100	21	AAA97080	G5 synthetic gene
C	13	99	7.1	99	21	AAA97077	G5 synthetic gene
C	14	95	6.8	95	21	AAA97074	G5 synthetic gene
C	15	95	6.8	95	21	AAA97078	G5 synthetic gene
	16	95	6.8	95	21	AAA97083	G5 synthetic gene
	17	94	6.7	94	21	AAA97079	G5 synthetic gene
	18	94	6.7	94	21	AAA97085	G5 synthetic gene
C	19	92	6.6	92	21	AAA97084	G5 synthetic gene
C	20	92	6.6	92	21	AAA97086	G5 synthetic gene
C	21	92	6.6	92	21	AAA97087	G5 synthetic gene
C	22	90	6.4	90	21	AAA97082	G5 synthetic gene
	23	89	6.3	89	21	AAA97081	G5 synthetic gene
C	24	80	5.7	95	21	AAA97088	G5 synthetic gene
	25	63.2	4.5	1326	21	AAA97036	G5 synthetic gene
	26	63.2	4.5	2486	21	AAA97037	G5 synthetic gene
	27	63.2	4.5	2811	21	AAA52134	Nucleotide sequenc
	28	61.6	4.4	1326	21	AAA52135	pBIC3 construct c
	29	38.2	2.7	34980	22	AAH68528	48 kDa i-antigen g
	30	38.2	2.7	4403765	22	AAI99683	C glutamicum codin
C	31	38.2	2.7	4411529	22	AAI99682	Mycobacterium tube
	32	37.4	2.6	18609	22	AAS21769	Mycobacterium tube
C	33	37.2	2.6	3946	18	AAT93610	Human gene for col
C	34	37	2.6	785	23	ABL28537	Mycobacterium tube
C	35	37	2.6	1829	23	ABL28536	Drosophila melanog
	36	36.2	2.6	913	18	AAT91476	Drosophila melanog
	37	36.2	2.6	913	18	AAT91413	Mycobacterium tube
	38	36.2	2.6	913	19	AAV64462	Mycobacterium tube
	39	36.2	2.6	913	19	AAV44354	M. tuberculosis im
	40	36.2	2.6	913	20	AAZ19264	M. tuberculosis an
	41	36.2	2.6	913	20	AAZ19052	M. tuberculosis re
C	42	35.8	2.5	1954	21	AAC44830	Arabidopsis thalia
C	43	35.8	2.5	2017	21	AAC456972	Arabidopsis pyruva
	44	35.8	2.5	2413	19	AAV41361	Chlamydomonas rein
C	45	35.4	2.5	4863	22	AAK52286	Human polynucleoti

ALIGNMENTS

RESULT 1
AAA97040
ID AAA97040 standard; DNA; 1404 BP.
AC AAA97040;
XX
XX
DT 18-DEC-2000 (first entry)
XX
DE 55kd i-antigen synthetic gene.
XX
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
KW white spot disease; freshwater fish; immune response; infection control.
XX
XX
OS Ichthyophthirius multifiliis.
OS Synthetic.
XX
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.

XX Clark TG, Dickerson HW, Lin T;
PI WPI; 2000-506071/45.
XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT Infection in fish
XX
XX Claim 5; Page 102; 144pp; English.
XX This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immunisation antigens are common to a variety of
CC hymenostomid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying I. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling I. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
XX Sequence 1404 BP; 317 A; 418 C; 339 G; 330 T; 0 other;
SQ
Query Match 100.0%; Score 1404; DB 21; Length 1404;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1404; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 ATGAAGAACAACATCCTGGTATCCTGATCATCTCTGTGTATCAACAGATCAAGTCT 60
DB 1 ATGAAGAACAACATCCTGGTATCCTGATCATCTCTGTGTATCAACAGATCAAGTCT 60
QY 61 GCTAACTGCTGTGGAGAACGACCAACACCGCTGCACAGGTGGACGACCTGGGAACC 120
DB 61 GCTAACTGCTGTGGAGAACGACCAACACCGCTGCACAGGTGGACGACCTGGGAACC 120
QY 121 CCTGCTAACTGTGTGAAGTGTGAGAGAACTTCTACTACAACACGCTGCTGTTTCGTG 180
DB 121 CCTGCTAACTGTGTGAAGTGTGAGAGAACTTCTACTACAACACGCTGCTGTTTCGTG 180
QY 181 CCTGGAGCTTCTACCTGTACCCCTGTGCTCAGAGAGAGAGCGTGGAGCTCAGCCTAAC 240
DB 181 CCTGGAGCTTCTACCTGTACCCCTGTGCTCAGAGAGAGAGCGTGGAGCTCAGCCTAAC 240
QY 241 CCTCTGCTACCGCTAACTGTGTGACCCAGTAACTGAACTGCTGCTGTGGAACCGCT 300
DB 241 CCTCTGCTACCGCTAACTGTGTGACCCAGTAACTGAACTGCTGCTGTGGAACCGCT 300
QY 301 ATCGCTGGAGGAGCTACCGACTACCGCTGCTATCATCACCAGTGTGAACTGTCGCATC 360
DB 301 ATCGCTGGAGGAGCTACCGACTACCGCTGCTATCATCACCAGTGTGAACTGTCGCATC 360
QY 361 AACTTCTACAAGAGAACGCTCCTAACTCAACGCTGGAGCTTCTACTGTACCGCTTGT 420
DB 361 AACTTCTACAAGAGAACGCTCCTAACTCAACGCTGGAGCTTCTACTGTACCGCTTGT 420
QY 421 CCTGTGAACCGGCTGGAGAGAGCTGTGACCGCTGAAACGCTGTACCATGTGGCTCAG 480
DB 421 CCTGTGAACCGGCTGGAGAGAGCTGTGACCGCTGAAACGCTGTACCATGTGGCTCAG 480
QY 481 TGTAACTGGCTGTGCTCCTACCGGAACCGCTCTGGACGACGAGTGAACCCGACTACGTG 540
DB 481 TGTAACTGGCTGTGCTCCTACCGGAACCGCTCTGGACGACGAGTGAACCCGACTACGTG 540

DB 481 TGTAACTGGCTGTGCTCCTACCGGAACCGCTCTGGACGACGAGTGAACCCGACTACGTG 540
QY 541 CGCTCTTTACCGAGTGTGCTGAAGTGTGCTGAACCTTCTACTACAACGAAACACGGA 600
DB 541 CGCTCTTTACCGAGTGTGCTGAAGTGTGCTGAACCTTCTACTACAACGAAACACGGA 600
QY 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTCTGCTATCAAGCCTGCT 660
DB 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTCTGCTATCAAGCCTGCT 660
QY 661 AACGTGGCTCAGGCTACCCCTGGGAAACGAGCTACCATCACCCTCAGTGTAAAGCTGGCT 720
DB 661 AACGTGGCTCAGGCTACCCCTGGGAAACGAGCTACCATCACCCTCAGTGTAAAGCTGGCT 720
QY 721 TGTCTCGAGCGGACCATCTCTCTCTGGAGTGAACAACTGGTGGCTCAGAACACCGAG 780
DB 721 TGTCTCGAGCGGACCATCTCTCTCTGGAGTGAACAACTGGTGGCTCAGAACACCGAG 780
QY 781 TGTACCAACTGTGCTCTTAACCTTCTACAAACAAACGCTTCTAATCTCAACCCCTGGAAC 840
DB 781 TGTACCAACTGTGCTCTTAACCTTCTACAAACAAACGCTTCTAATCTCAACCCCTGGAAC 840
QY 841 TGTACCTGTGCTCTTCTCTCTTCTAAGCAGTGTAACTCTTCTCTGAGGAAACCGCTATCCTTCT 960
DB 841 TGTACCTGTGCTCTTCTCTCTTCTAAGCAGTGTAACTCTTCTCTGAGGAAACCGCTATCCTTCT 960
QY 901 GCTGCTACCCCTGGCTAAGCAGTGTAACTCTGCTTCTGAGGAAACCGCTATCCTTCTCTTCT 960
DB 901 GCTGCTACCCCTGGCTAAGCAGTGTAACTCTGCTTCTGAGGAAACCGCTATCCTTCTCTTCT 960
QY 961 GGAGCTACCAACTACGTGATCTCTGCTGAGAGCGGAGTGTCTGAACCTGTGCTGCTTCTAC 1020
DB 961 GGAGCTACCAACTACGTGATCTCTGCTGAGAGCGGAGTGTCTGAACCTGTGCTGCTTCTAC 1020
QY 1021 TCTGACGAAACAACTTCCAGGCTGATCTTCTGCTGTAAAGCTTGTCTCTGCTTCTAACAG 1080
DB 1021 TCTGACGAAACAACTTCCAGGCTGATCTTCTGCTGTAAAGCTTGTCTCTGCTTCTAACAG 1080
QY 1081 GTGAGGAGCTGTGGCTACCGCTGGAGGAAACCGCTACCTGATGCTCAGTGTGCTCTG 1140
DB 1081 GTGAGGAGCTGTGGCTACCGCTGGAGGAAACCGCTACCTGATGCTCAGTGTGCTCTG 1140
QY 1141 GAGTGTCTGCTGGAACCGCTGCTGACCGAGGAAACCGCTTCTACCTTACAGGAGCTGCT 1200
DB 1141 GAGTGTCTGCTGGAACCGCTGCTGACCGAGGAAACCGCTTCTACCTTACAGGAGCTGCT 1200
QY 1201 TCTGAGTGTGGAAGTGTGCTGCTTCTTCTAAGCTTCTACACCAAGCAGACCGCTGGTGGCT 1260
DB 1201 TCTGAGTGTGGAAGTGTGCTGCTTCTTCTAAGCTTCTACACCAAGCAGACCGCTGGTGGCT 1260
QY 1261 GGAATCGACACCTGTACCTCTTCTAAGCTTCTTCTAAGCTTCTTCTGAGCTGAGCTTAACTG 1320
DB 1261 GGAATCGACACCTGTACCTCTTCTAAGCTTCTTCTAAGCTTCTTCTGAGCTGAGCTTAACTG 1320
QY 1321 CCTGAGTGTCTGAAGAAGACATCCAGTGTGCTGCTTCTGCTTCTTCTGCTTCTGCTG 1380
DB 1321 CCTGAGTGTCTGAAGAAGACATCCAGTGTGCTGCTTCTGCTTCTTCTGCTTCTGCTG 1380
QY 1381 CTGCTGATCTTCTTACTACTCTGCTG 1404
DB 1381 CTGCTGATCTTCTTACTACTCTGCTG 1404
RESULT 2
AAA97089
ID AAA97089 standard; DNA; 1410 BP.
XX
AC AAA97089;
XX
DT 18-DEC-2000 (first entry)
XX
DE Synthetic I. Multifiliis G5 isolate i-antigen gene.
XX

Immobilisation antigen: i-antigen; ichthyophthiriasis; vaccine; ds;
white spot disease; freshwater fish; immune response; infection control.
Synthetic.

Ichthyophthirius multifiliis.

WO200046373-A1.

10-AUG-2000.

04-FEB-2000; 2000WO-US02962.

04-FEB-1999; 99US-0118634.

02-MAR-1999; 99US-012372.

17-MAR-1999; 99US-0124905.

27-APR-1999; 99US-0131121.

(UYGE-) UNIV GEORGIA RES FOUND INC.

(CORR.) CORNELL RES FOUND INC.

(CLARK/) CLARK T G.

(DICK/) DICKERSON H W.

(LIN/) LIN T.

Clark TG, Dickerson HW, Lin T;

WPI; 2000-506071/45.

Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius multifiliis, useful for prophylaxis and treatment of Ichthyophthirius infection in fish.

Example 5; Figure 2b; 144pp; English.

This invention relates to novel i-antigen polypeptide sequences. i-antigens or immobilisation antigens are common to a variety of hymenostomatid ciliates and their expression varies in response to environmental stimuli. This invention relates to i-antigens in Ichthyophthirius multifiliis, a protozoan which is an obligate parasite of freshwater fish causing ichthyophthiriasis or white spot disease. The invention includes two polypeptide and polynucleotide sequences for two i-antigens, of 48 and 55 kb. Also included in the invention are antibodies capable of binding to the nucleotide sequences and a method for identifying I. multifiliis serotypes using the nucleotide sequences. A composition (containing the i-antigen nucleotide) capable of eliciting an immune response in fish is useful for prophylaxis, treatment or for controlling I. multifiliis infection in fish. Polynucleotide or protein vaccines comprising a portion of the amplified product encoding an antigenic i-antigen polypeptide obtained is also useful for treating or preventing I. multifiliis infection in fish. Sequences AAA97036-A97042, and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AAA97043-A97064 (excluding AAA97060) and AAA97071-A97088 represent primers used in the isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and AAB25893-B25906 represent i-antigen protein and peptide sequences.

Sequence 1410 BP: 321 A; 418 C; 339 G; 332 T; 0 other;

Query Match 100.0%; Score 1404; DB 21; Length 1410;
Best Local Similarity 100.0%; Pred. No. 0;
Matches 1404; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 ATGAAGAACAACATCCCTGGTGATCCTGATCATCTCTGTTTCATCAACAGATCAAGTCT 60

Db 1 ATGAAGAACAACATCCCTGGTGATCCTGATCATCTCTGTTTCATCAACAGATCAAGTCT 60

Qy 61 GCTAACTGTCCTGTGGAAACCGAGACCAACACCGCTGGACAGTGGACGACCTGGGAACC 120

Db 61 GCTAACTGTCCTGTGGAAACCGAGACCAACACCGCTGGACAGTGGACGACCTGGGAACC 120

Qy 121 CCTGCTAACTGTCGTGAAGTGTCTGAGAGAACTTCTACTACAAACAGCTGCTGCTTCGTG 180

Db 121 CCTGCTAACTGTCGTGAAGTGTCTGAGAGAACTTCTACTACAAACAGCTGCTGCTTCGTG 180

Qy 181 CCTGGAGCTTCTACCTGTACCTCCCTTGTCTCAGAAAGACGCTGGAGCTCAGCCTAAC 240

Db 181 CCTGGAGCTTCTACCTGTACCTCCCTTGTCTCAGAAAGACGCTGGAGCTCAGCCTAAC 240

Qy 241 CCTCCTGTACCCGCTAACCTGTGACCCAGTGTAAAGTGTCTGCTGCTGGAACCGCT 300

Db 241 CCTCCTGTACCCGCTAACCTGTGACCCAGTGTAAAGTGTCTGCTGCTGGAACCGCT 300

Qy 301 ATCGCTGGAGAGCTACCGACTACGCTGTATCATCACCAGAGTGTGTAAGTGTCTGCTG 360

Db 301 ATCGCTGGAGAGCTACCGACTACGCTGTATCATCACCAGAGTGTGTAAGTGTCTGCTG 360

Qy 361 AACTTCTACAAAGAGAACGCTCTCAACTTCAACGCTGGAGCTTCTACCTGTACCGCTGT 420

Db 361 AACTTCTACAAAGAGAACGCTCTCAACTTCAACGCTGGAGCTTCTACCTGTACCGCTGT 420

Qy 421 CTTGTGAACCGCTGGAGAGCTCTGACCGCTGGAACCGCTGCTACCATGTGGCTCAG 480

Db 421 CTTGTGAACCGCTGGAGAGCTCTGACCGCTGGAACCGCTGCTACCATGTGGCTCAG 480

Qy 481 TGTAACTGGCTTGTCTTACCGGAACCGCTCTGGACGAGGAGTGAACGCTACGCTAGTG 540

Db 481 TGTAACTGGCTTGTCTTACCGGAACCGCTCTGGACGAGGAGTGAACGCTACGCTAGTG 540

Qy 541 CGCTCTTTCACCGAGTGTGTGAAGTGTGCTGCTGAACTTCTACTACAACGGAACACGGA 600

Db 541 CGCTCTTTCACCGAGTGTGTGAAGTGTGCTGCTGAACTTCTACTACAACGGAACACGGA 600

Qy 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTCTCCTGTATCAACGCTTGT 660

Db 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTCTCCTGTATCAACGCTTGT 660

Qy 661 AACGTGGCTAGGCTACCTGGGAAACGCTACCATCAACGCTCAGTGTGAAGCTGGCT 720

Db 661 AACGTGGCTAGGCTACCTGGGAAACGCTACCATCAACGCTCAGTGTGAAGCTGGCT 720

Qy 721 TGTCTGTACGGAACCATCTCTGCTGTGAGTGAACAACTGGGTGGCTCAGAACACCGAG 780

Db 721 TGTCTGTACGGAACCATCTCTGCTGTGAGTGAACAACTGGGTGGCTCAGAACACCGAG 780

Qy 781 TGTACCAACTGTGCTCTTAACTTCTACAACAACAACTCTCTAACTTCAACCCCTGGAAAC 840

Db 781 TGTACCAACTGTGCTCTTAACTTCTACAACAACAACTCTCTAACTTCAACCCCTGGAAAC 840

Qy 841 TCTACCTGTCTGCTTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGT 900

Db 841 TCTACCTGTCTGCTTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGT 900

Qy 901 GCTGTACCCCTGGCTTAAGCAGTGTAACTCGCTTGTCTGTCTGTCTGTCTGTCTGTCTGT 960

Db 901 GCTGTACCCCTGGCTTAAGCAGTGTAACTCGCTTGTCTGTCTGTCTGTCTGTCTGTCTGT 960

Qy 961 GGAGCTACCAACTACGCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGT 1020

Db 961 GGAGCTACCAACTACGCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGTCTGT 1020

Qy 1021 TTCACGGAACAACTTCCAGGCTGGATCTTCTCGCTGTGAAGCTGTCTGTCTGTCTGTCTGT 1080

Db 1021 TTCACGGAACAACTTCCAGGCTGGATCTTCTCGCTGTGAAGCTGTCTGTCTGTCTGTCTGT 1080

Qy 1081 GTGAGGAGCTGTGGCTACCGCTGGAGGAACCGCTACCTGTATCGCTCAGTGTGCTCTGT 1140

Db 1081 GTGAGGAGCTGTGGCTACCGCTGGAGGAACCGCTACCTGTATCGCTCAGTGTGCTCTGT 1140

Qy 1141 GAGTGTCTCTGTGGAACCGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTG 1200

Db 1141 GAGTGTCTCTGTGGAACCGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTG 1200

Qy 1201 TCTGAGTGTGTGAAGTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTG 1260

Db 1201 TCTGAGTGTGTGAAGTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTGCTGTG 1260

Qy 1261 GGAATCGACACCTGTACCTCTTGTAAAGAGCTGACCTCTGGAGCTGAGGCTAACCTGTG 1320

Db 1261 GGAATCGACACCTGTACCTTGTAAACAAGAGCTGACCTCTGGAGCTGAGGCTAACCTG 1320
|||||
QY 1321 CCGAGTGTGCTAAGAACAACATCCAGTGCACCTTCGCTAACTTCCTGTCTATCTCTCTG 1380
|||||
Db 1321 CTGAGTGTGCTAAGAACAACATCCAGTGCACCTTCGCTAACTTCCTGTCTATCTCTCTG 1380
|||||
QY 1381 CTGCTGATCTCTTACTACTGCTG 1404
|||||
Db 1381 CTGCTGATCTCTTACTACTGCTG 1404
|||||
RESULT 3
AAA97065
ID AAA97065 standard; DNA; 1404 BP.
XX AC AAA97065;
XX 18-DEC-2000 (first entry)
XX Synthetic 55kD i-antigen gene sequence.
DE Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine; ds;
XX white spot disease; freshwater fish; immune response; infection control.
KW Ichthyophthirius multifiliis.
XX Synthetic.
OS WO200046373-A1.
OS 10-AUG-2000.
XX 04-FEB-2000; 2000WO-US02962.
XX 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX Clark TG, Dickerson HW, Lin T;
PI WPI; 2000-0506071/45.
DR
XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
PT infection in fish .
XX Example 5; Figure 13; 144pp; English.
PS
XX This invention relates to novel i-antigen polypeptide sequences.
CC I-antigens or immobilisation antigens are common to a variety of
CC hymenostomatid ciliates and their expression varies in response to
CC environmental stimuli. This invention relates to i-antigens in
CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
CC invention includes two polypeptide and polynucleotide sequences for two
CC i-antigens, of 48 and 55 kD. Also included in the invention are
CC antibodies capable of binding to the nucleotide sequences and a method
CC for identifying i. multifiliis serotypes using the nucleotide sequences.
CC A composition (containing the i-antigen nucleotide) capable of eliciting
CC an immune response in fish is useful for prophylaxis, treatment or for
CC controlling i. multifiliis infection in fish. Polynucleotide or protein
CC vaccines comprising a portion of the amplified product encoding an
CC antigenic i-antigen polypeptide obtained is also useful for treating or
CC preventing i. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064

CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 1404 BP; 317 A; 418 C; 339 G; 330 T; 0 other;
Query Match 99.8%; Score 1400.8; DB 21; Length 1404;
Best Local Similarity 99.9%; Pred. No. 0;
Matches 1402; Conservative 0; Mismatches 2; Indels 0; Gaps 0;
QY 1 ATGAAGAACACATCTCTGATCTCTGATCATCTCTCTGTTTCATCAACACAGATCAAGTCT 60
|||||
Db 1 ATGAAGAACACATCTCTGATCTCTGATCATCTCTCTGTTTCATCAACACAGATCAAGTCT 60
|||||
QY 61 GCTAACTGTCCTGGGAACCGAGACCAACCGCTGGACAGGTGGACGACCTGGGAACC 120
|||||
Db 61 GCTAACTGTCCTGGGAACCGAGACCAACCGCTGGACAGGTGGACGACCTGGGAACC 120
|||||
QY 121 CCTGCTAACTGTGTGAAGTGTGAGAGAACTTCTACTACAACAGCGTGTGCTTTCGTG 180
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Db 121 CCTGCTAACTGTGTGAAGTGTGAGAGAACTTCTACTACAACAGCGTGTGCTTTCGTG 180
|||||
QY 181 CTGGAGCTTCTACCTGTACCCCTTGTCTCAGAAGAAGAGCGCTGGAGCTCAGCCTAAC 240
|||||
Db 181 CTGGAGCTTCTACCTGTACCCCTTGTCTCAGAAGAAGAGCGCTGGAGCTCAGCCTAAC 240
|||||
QY 241 CCTCCTGCTACCGCTAACCTGTGTGACCCAGTGAAGTGAAGTGTCTGCTGGGACCGCT 300
|||||
Db 241 CCTCCTGCTACCGCTAACCTGTGTGACCCAGTGAAGTGAAGTGTCTGCTGGGACCGCT 300
|||||
QY 301 ATCGCTGGAGGAGCTACCGACTACCGTGTATCATCACCGAGTGTGTGAACCTGTGCGATC 360
|||||
Db 301 ATCGCTGGAGGAGCTACCGACTACCGTGTATCATCACCGAGTGTGTGAACCTGTGCGATC 360
|||||
QY 361 AACTTCTACAACAGAGACGCTCCTAACTTCAACGCTGGAGCTTCTACCTGTACCGCTTGT 420
|||||
Db 361 AACTTCTACAACAGAGACGCTCCTAACTTCAACGCTGGAGCTTCTACCTGTACCGCTTGT 420
|||||
QY 421 CCTGTGAACCGCTGGGAGGAGCTCTGACCGTGGAAACGCTGCTACCATCTGCTGCTCAG 480
|||||
Db 421 CCTGTGAACCGCTGGGAGGAGCTCTGACCGTGGAAACGCTGCTACCATCTGCTGCTCAG 480
|||||
QY 481 TGTAAACGTGCTTGTCTCTACCGGAACCGCTCTGAGACGACGGAGTACCACCGCTACGTTG 540
|||||
Db 481 TGTAAACGTGCTTGTCTCTACCGGAACCGCTCTGAGACGACGGAGTACCACCGCTACGTTG 540
|||||
QY 541 CGCTCTTTTCAACCGAGTGTGAAAGTGTGCGCTGAACCTTCTACTACAACGGAACACCGGA 600
|||||
Db 541 CGCTCTTTTCAACCGAGTGTGAAAGTGTGCGCTGAACCTTCTACTACAACGGAACACCGGA 600
|||||
QY 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTCTATCAAGCCTGCT 660
|||||
Db 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTCTATCAAGCCTGCT 660
|||||
QY 661 AACCTGGCTCAGGCTACCTGGGAAACGAGCTACCATCACCCCTCAGTCTACGTTACGTTGCT 720
|||||
Db 661 AACCTGGCTCAGGCTACCTGGGAAACGAGCTACCATCACCCCTCAGTCTACGTTACGTTGCT 720
|||||
QY 721 TGTCTGTACGGAACCATCTCTGCTGTGGAGTGAACAACTGGGTGGCTCAGAACACCGAG 780
|||||
Db 721 TGTCTGTACGGAACCATCTCTGCTGTGGAGTGAACAACTGGGTGGCTCAGAACACCGAG 780
|||||
QY 781 TGTACCAACTGTGCTCTTCTTCTACAACAACACGCTCCTTCACTTCAACCCCTGGAAC 840
|||||
Db 781 TGTACCAACTGTGCTCTTCTTCTACAACAACACGCTCCTTCACTTCAACCCCTGGAAC 840
|||||
QY 841 TCTACTGTGCTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCT 900
|||||
Db 841 TCTACTGTGCTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCT 900
|||||
QY 901 GCTGCTACCTGGCTTAAGCAGTGTAAACATCGCTTGTCTGTGACGGAACCGGTATGCTTCT 960
|||||
Db 901 GCTGCTACCTGGCTTAAGCAGTGTAAACATCGCTTGTCTGTGACGGAACCGGTATGCTTCT 960
|||||

Db	601	AACTACTCCTTTCAATCCAGGTAARAGTTAATGACACACCTTGTCCGGCAATTAACACCTGCT	660
Qy	661	AACTGGGCTCAGGCTACCCCTGGGAACACACGCTACCATCACCCTCAGTGTAAAGTGGCT	720
Db	661	AACTGGTCTTAAGCTACTTTAGTGAATGATGCTACAATAACCCGATATGTAAGCTTTGCA	720
Qy	721	TGTCCTGACGGACCATCTCTGCTCGTGGAGTGAACAACTGGGTGGCTCAGAACACCGAG	780
Db	721	TGCCCTGATGGTACTAATAAGTCTGCTGGAGTAATAATGCGTAGCACAAACACTGAA	780
Qy	781	TGTACCAACTGTGCTCCTAACCTTACAAACACAGCTCCTCACTCAACCCCTGGAAAC	840
Db	781	TGTACTAATTTGCTCCTAACCTTTACAATAATAATGCTCCTAAATTTCAATCCAGGTAAT	840
Qy	841	TCTACCTGTCTGCTTCTGCTCTACAGAGACTACGAGCTGAGGCTACCGCTGGAGGA	900
Db	841	AGTACATGCTACTGCTGCCCCAGCAATAAAGATTAATGCTGTAAGCCACTGCGAGTGGT	900
Qy	901	GCTGCTACCTGCTAAGCAGTGAACATCGCTTCTGACGGAAACCGCTATCGCTTCT	960
Db	901	CGCGCTACTTTAGCCAAATAATGTAATTTGCAATGCCCTGATGCTGCAATTCGTAGT	960
Qy	961	GGAGCTACCAACTACGTGATCTGACAGCCGAGTGTCTGAACCTGTGCTAACTTCTAC	1020
Db	961	GGAGCAACTAATTTATGTAATATTATAACACAGAACTGTCTAAATGTGCTGCTAACTTTAT	1020
Qy	1021	TTGACGGGAACAACCTCCAGGCTGATCTTCTCGCTGTAAAGCTTGTCTCTGCTAACCAAG	1080
Db	1021	TTTGATGGTAATAATTTCTAGCGCAGGAAGTAGTAGATGCAAGCATGTCACAGCAATAAA	1080
Qy	1081	GTGACGGAGCTGTGGCTACCGCTGGAGGAACCGGTACCCCTGATCGCTCAGTGTGCTCTG	1140
Db	1081	GTTTAAGCGCTGTAGCAACTGCAGGTGGTACTGTACTTTAATGCAATAATGTGCCCTT	1140
Qy	1141	GAGTGTCTCTGGAACCGCTGACGGAGGAAACACCTCTACCTACAAAGCAGGCTGCT	1200
Db	1141	GAATGCGCTCTGCTGTACTGTACTCACCCTGGAACCAACATCTACTTATAAATAGCAGCA	1200
Qy	1201	TCTGAGTGTGTGAAGTGTGCTGCTAACTTCTACACCAACCAAGCAGCAGCTGGGTGGCT	1260
Db	1201	TCTGAATGTGTAAATGTGCTGCCAATTTTACTACAAAATAAACTGATTTGGGTAGCA	1260
Qy	1261	GGAATCGACACCTGTACTCTTGTAAACAGACTGACCTCTGAGCTGAGGCTAACCTG	1320
Db	1261	GGTATTGATACATGCTACTAGTTGTATAAAAAAATAAATTAACCTCTGGCGCTGAAGCTAATTTA	1320
Qy	1321	CCTGAGTGTCTGAAGAAGACATCCAGTGTGACTTCGCTTAACCTTCCTGTCTATCTCTG	1380
Db	1321	CGTGAATCTGTCAAAAAATATAATATGATGATTCGCTAAATTTTTATCAATTTCCCTTA	1380
Qy	1381	CTGCTGATCTCTACTA	1397
Db	1381	TTATGATTTCTTATTA	1397
RESULT	5		
ID	AAA52136		
XX	AAA52136 standard; DNA; 1404 BP.		
AC	AAA52136;		
XX	AC		
DT	04-DEC-2000 (first entry)		
XX	55 kda i-antigen gene.		
DE	BTU1; beta-tubulin; protein expression system; negative selection;		
XX	KW		
KW	pacilitaxel sensitivity; cell surface; antigen; protozoa; ciliate;		
KW	live vaccine; Ichthyophthius multifiliis; immobilization-antigen;		
KW	i-antigen; freshwater; fish; protozoacide; ds.		
XX	Ichthyophthius multifiliis.		
OS	XX		
XX	XX		
Key	Location/Qualifiers		
..			

FT	CDS	1..1404	
FT		/tag= a	
FT		/codon= (seq:"TAA", aa:Gln)	
FT		/product= 55_kDa_i-antigen	
FT		/partial	
XX	WO200046381-A1.		
PN			
XX	10-AUG-2000.		
XX	04-FEB-2000; 2000WO-US02966.		
PF			
XX	04-FEB-1999; 99US-0118634.		
PR	02-MAR-1999; 99US-012372.		
PR	17-MAR-1999; 99US-0124905.		
PR	27-APR-1999; 99US-0131121.		
XX			
XX	(UYGE-) UNIV GEORGIA RES FOUND INC.		
PA	(GAER/) GAERTIG J.		
PA	(DICK/) DICKERSON H W.		
PA	(CLAR/) CLARK T G.		
XX			
PI	Gaertig J, Dickerson HW, Clark TG;		
XX			
XX	WPI; 2000-514962/46.		
DR	P-PSDB; AAY97177.		
XX			
XX	Recombinant expression systems for expressing heterologous nucleic acids and producing recombinant protein, comprises nonpathogenic protozoa such as Tetrahymena resistant to paclitaxel		
PT			
PT			
PS	Disclosure; Fig 3B; 83pp; English.		
XX			
XX	Tetrahymena thermophila expresses two major beta-tubulin genes (BTU1 and BTU2), which encode identical beta-tubulin proteins. Either of these two genes (but not both at once) can be disrupted without a detectable change in the cell phenotype. A K350L substitution in the BTU1 beta-tubulin protein confers increased resistance to microtubule-depolymerizing drugs and increased sensitivity to paclitaxel, a microtubule-stabilizing drug. Cells carrying the BTU1-K350M allele can be transformed to paclitaxel resistance by gene replacement of BTU1-K350M with a wild-type BTU1 gene fragment, eliminating the need to incorporate a means for positive selection. Where the host organism is not a T. thermophila mutant containing the BTU1-K350M allele, BTU1::neoI construct, which substitutes the coding region of the neoI gene (conferring resistance to paromycin) for that of BTU1, can be used to generate BTU1 gene knockouts and for positive selection. Heterologous nucleic acids (especially encoding antigenic polypeptides) can be inserted into a BTU1 gene for successful cell-surface expression that is maintained by way of negative selection. Preferred expression vectors disrupt the BTU1-K350M gene by homologous recombination-mediated insertion of a heterologous nucleic acid, thereby restoring resistance to paclitaxel in the resulting transgenic host. Transgenic ciliated protozoa are useful as live vaccines for stimulating an immune response in a vertebrate. The transgenic protozoan host cells are also useful for producing polyclonal antibodies (claimed). In particular, Tetrahymena expressing Ichthyophthius multifiliis immobilization-antigen (i-antigen) protein on their surface are effective vehicles for vaccination of freshwater fish against infection by I. multifiliis.		
XX			
SQ	Sequence 1404 BP; 447 A; 241 C; 256 G; 460 T; 0 other;		
	Query Match	55.7%;	Score 782.6; DB 21; Length 1404;
	Best Local Similarity	72.5%;	Pred. No. 1.4e-215;
	Matches 1013; Conservative	0;	Mismatches 384; Indels 0; Gaps 0;
Qy	1	ATGAGAACACATCTCTGGTGCATCTCTCTCTCTCATCAACACAGATCAAGTCT	60
Db	1	ATGAAATAATATTTTGTAGTATATGATTATTTCAATTAATTAATAATCT	60
Qy	61	GCTAACTGCTCTGGGACCGAGACCAACACCGCTGGACGGTGGACCGGGAACC	120
Db	61	GCTAATTCCTGTTGGAACTCAAACTAAACACCGGATGAAGTTGATGATCTAGGACT	120

QY 121 CCTGCTAAGTGTGTGAAGTCTCAGAAAGACTTCTACTACAACACGCTGCTCTTCGCTG 180
DB 121 CCTGCAAAATGTGTAAATGTTAGAAAACTTTTATTATAATAATGCTGCTGCTTTTCGTT 180
QY 181 CCGTGGAGCTTCTACCTGTACCCCTTGTCTCAGAGAAAGACGCTGGAGCTCAGCCTAAC 240
DB 181 CCGTGGTCTAGTAGTACGCTGTACACCTTCTCCATAAAAAAGATGCTGGTGTCTTAACCAAT 240
QY 241 CCTCCCTGCTACCCGCTAACCTGGTGACCCAGTGTAAAGTGAAGTGTCTGCTGGAACCGCT 300
DB 241 CCACCTGCTACTGCTAATTTAGTACATATAATGTAACGTTAAATGCCCTGCTGGTACCGCA 300
QY 301 ATGCGCTGGAGAGCTACCGACTACGCTGTATCATCACCGAGTGTGAAGTGTGCGCATC 360
DB 301 ATTGCAAGTGGACACACATATGCAAGCAATTAATCACAGAAATGTTAAATGTAGAAAT 360
QY 361 AACTTCTACACGAGAACGCTCCTAACITTCACGCTGGAGCTTCTACCTGTACCGCTGT 420
DB 361 AATTTTATATAAGAAATGCTCCAAATTTTAATGCAAGTGTCTAGTACATGCACAGCTGT 420
QY 421 CCGTGAACCGGCTGGAGAGCTCTGACCGCTGGAACGCTGGAACGCTGTACCATCGTGGCTCAG 480
DB 421 CCGGTAACAGAGTTGGTGGTGCATGACTGCTGCTGATGATGAGTAACCTGCTACCATAGTGCATAA 480
QY 481 TGTACGCTGGCTGTCTACCGGAACCGCTCTGGACGAGGAGTACACCGAGTACGCTACGCTG 540
DB 481 TGTACGCTGCCATGCTTACTGCTACTGCCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 540
QY 541 CCGCTCTTTCACGAGTGTGNAAGTGTGCGCTGAACTTCTACTACAAACGGAACCAACGGA 600
DB 541 AGATCATTCACAGAAATGTTAAATGTAGACTTAACITTTACTATAATGCTGCTGCTGCTGCTGCT 600
QY 601 AACACCCCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTGCTGCTGCTGCTGCTGCTGCTGCT 660
DB 601 AATACTCCTTTCAATCCAGGTAAGTTAATGACACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 660
QY 661 AAGCTGGCTCAGGCTACCCCTGGGAACACGCTACCATCACCGCTCAGTGTGCTGCTGCTGCTGCT 720
DB 661 AATGTGCTTAAAGCTACTTTAGTAAATGATGATGATGATGATGATGATGATGATGATGATGATGAT 720
QY 721 TGTCTGACGGAACCATCTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
DB 721 TGCCCTGATGCTACTATAAGTGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
QY 781 TGTACCACTGTGCTCTTAAGTGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 840
DB 781 TGTACTAATTTGCTCTCACTTTTACAATAATAATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 840
QY 841 TCTACTGCT 900
DB 841 AGTACATGCTTACCTTGGCAGCAAAATTAAGATGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 900
QY 901 GCTGCTACCCCTGGCTAAGCAGTGTAAACATCGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 960
DB 901 GCCGCTACTTTAGCAAAATAATGTAATTTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 960
QY 961 GGAGCTACCACTACGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1020
DB 961 GGAGCAACTAATTTATGTAATTTAATAACAGAAATGCTAATAATGCTGCTGCTGCTGCTGCTGCTGCT 1020
QY 1021 TTCACGGAACAACTTCCAGGCTGATCTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1080
DB 1021 TTTGATGCTAATTTCTAGGAGAGAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAGTAG 1080
QY 1081 GTGAGGAGCTGTGGCTACCGCTGGAGGAACCGCTTACCGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1140
DB 1081 GTTAAGGCGCTGTAGCACTGAGGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1140
QY 1141 GAGTGTCTGCTGGAACCGTGTGACCGGAGGAGCAACCTCTACCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1200
DB 1141 GAATGCCCTGCT 1200

QY 1201 TCTGAGTGTCTGAAGTGTCTGCTTAAGTCTTCTACACCACCAAGCAGACCGCTGCTGCTGCT 1260
DB 1201 TCTGAATGTGTTAAATGTGCTGCCAACTTTTATACCTACAAAATAAACTGATTTGGGTAGCA 1260
QY 1261 GGAATCGACACCTGTACCTCTTGTAAAGAAAGCTGACCTCTGGAGCTGAGGCTAACCTG 1320
DB 1261 GGTATTGATACATGTACTAGTTGTAATAAAAAATTAACCTTCTGGGCGCTGAAGCTAATTTA 1320
QY 1321 CCGTACCTGCTGAAGAAAGACATCCAGTGTGACTTTCGCTAACCTTCTGCTGCTGCTGCTGCT 1380
DB 1321 CCGAATCTGCTAAAAAATATATAATGTGATTTGCTGCTAATTTTATCAATTTCCCTTA 1380
QY 1381 CTGCTGATCTCTTACTA 1397
DB 1381 TTATTGATTTCTATT 1397

RESULT 6

AAA97060

ID AAA97060 standard; DNA; 1410 BP.

XX AAA97060;

XX 18-DEC-2000 (first entry)

XX 55kd i-antigen coding region.

DE Immobilisation antigen: i-antigen; ichthyophthiriasis; vaccine; ds;
KW white spot disease; freshwater fish; immune response; infection control.

XX Ichthyophthirius multifiliis.

PN WO200046373-A1.

XX 10-AUG-2000.

XX 04-FEB-2000; 2000WO-US02962.

XX 04-FEB-1999; 99US-0118634.

PR 02-MAR-1999; 99US-0122372.

PR 17-MAR-1999; 99US-0124905.

PR 27-APR-1999; 99US-0131121.

XX (UYGE-) UNIV GEORGIA RES FOUND INC.

PA (CORR) CORNELL RES FOUND INC.

PA (CLARK) CLARK T G.

PA (DICK) DICKERSON H W.

PA (LINT) LINT T.

XX Clark TG, Dickerson HW, Lin T;

XX WPI: 2000-506071/45.

XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius

XX multifiliis, useful for prophylaxis and treatment of Ichthyophthirius

XX infection in fish .

XX Disclosure; Figure 2; 144pp; English.

XX This invention relates to novel i-antigen polypeptide sequences.
XX I-antigens or immobilisation antigens are common to a variety of
XX hymenostomatid ciliates and their expression varies in response to
XX environmental stimuli. This invention relates to i-antigens in
XX Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
XX of freshwater fish causing ichthyophthiriasis or white spot disease. The
XX invention includes two polypeptide and polynucleotide sequences for two
XX antibodies capable of binding to the nucleotide sequences and a method
XX for identifying I. multifiliis serotypes using the nucleotide sequences.
XX A composition (containing the i-antigen nucleotide) capable of eliciting
XX an immune response in fish is useful for prophylaxis, treatment or for
XX controlling I. multifiliis infection in fish. Polynucleotide or protein
XX vaccines comprising a portion of the amplified product encoding an

antigenic i-antigen polypeptide obtained is also useful for treating or preventing i. multifiliis infection in fish. Sequences AA97036-A97042, and AA97060, AA97065 and AA97089 represent i-antigen genes and gene fragments identified in the invention. Sequences AA97043-A97064 (excluding AA97060) and AA97071-A97088 represent primers used in the isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and AAB25893-B25906 represent i-antigen protein and peptide sequences.

Sequence 1410 BP; 449 A; 240 C; 259 G; 462 T; 0 other;

Query Match 55.7%; Score 782.6; DB 21; Length 1410;
Best Local Similarity 72.5%; Pred. No. 1.4e-215;
Matches 1013; Conservative 0; Mismatches 384; Indels 0; Gaps 0;

QY 1 ATGAAGAACCAATCCTGGTGATCGTATCATCTCTCTGTTTCATCAACGAGTCAAGTCT 60
DB 1 ATGAAATAATATTAGTATATATGATTTATTCATTTATTAATTAATAATTAATAICT 60
QY 61 GCTAACTGTCCTGGGAACCGACCAACACCGCTGGACAGGTGGACGCTGGGAACC 120
DB 61 GCTAAATGTCCTGGGAACCGTGAACCTAACACACCGGATAGTTGATGATCAGGAACT 120
QY 121 CTTGCTAACTGTCGAACCTGTCAGAGAACTTCTACTACAACACGCTGCTGCTTCGTG 180
DB 121 CTTGCAATGTCGTAATGTTAGAAAACCTTTTATTAATAATGCTGCTGCTTTCGTT 180
QY 181 CTTGGAGCTTCACTGTAACCCCTTGTCTCAGAACAGGAGCGCTGGAGCTCAGCCTAAC 240
DB 181 CTTGGTGTAGTACGTTACACCTTGTCCATAAAAAAGATGCTGGTGCCTTAACCAAT 240
QY 241 CTTCTGCTACCGCTAACCTTGTGACCCAGTCTAACGTTGAAGTGTCCCTGCGAACCGCT 300
DB 241 CCACCTGCTACTGCTAATTTAGTCACATATGTAACGTTAATGCTGCTGGTACCGCA 300
QY 301 ATCGCTGGAGGACTACCGACTACGCTGCTATCATCAGGAGTGTGTAAGTGTGCTATC 360
DB 301 ATTGCAGTGGCAACAGATATGCAAGCAATAATCACAGAATGTTAAATGTAAGAT 360
QY 361 AACTTCTACACAGACGCTTCACTTCAAGCTGGAGCTTCACTGTACCGCTTGT 420
DB 361 AATTTTATTAATGAATAGCTCCAAATTTTATGCAAGTGTCTAGTACATGCACGCTGT 420
QY 421 CCTGTGAACCGCTGGGAGAGCTCTGACCGCTGGAAACGCTGTACCAATCGTGTCTAG 480
DB 421 CCGGTAACACAGATGTTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 480
QY 481 TGTAACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 540
DB 481 TGTAACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 540
QY 541 CGCTCTTTACCGAGTGTGGAAGTGTGCGCTGAACTTCTACTACAAACGGAACACGGA 600
DB 541 AGATCATTCACAGATGTTTAAATGTAGACTTAACTTTTACTATTAATGTAATATGTT 600
QY 601 AACACCCCTTTCAACCTGGAAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 660
DB 601 AATACTCTTTCAATCCAGGTAAAGTAAATGACACACTTGTCCGGCAATTAACCTGCT 660
QY 661 AACGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 720
DB 661 AATGTTGCTTAAAGCTTAAATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 720
QY 721 TGTCTGTACGGAACATCTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
DB 721 TGCCTGTGTTACTATTAAGTGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 780
QY 781 TGTACCACTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 840
DB 781 TGTACTAATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 840
QY 841 TCTACTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 900
DB 841 AGTACATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 900

QY 901 GCTGTACCTCCCTGCTAAGCAGTGTAAACATCGCTGCTGCTGCTGCTGCTGCTGCTGCT 960
DB 901 CCGCTACTTTTAGCCAAATAATGTAATTTGTCATGCCCTCATGCTGCTGCTGCTGCTGCT 960
QY 961 GGAGTACCAACTACGTCATCCTCCAGCAGGAGTGTGCTGAACCTGCTGCTGCTGCTGCT 1020
DB 961 GGAGCAACTAATATGTAATATATAAACAGATGCTGCTGCTGCTGCTGCTGCTGCTGCT 1020
QY 1021 TTCGACGGAACAACTTCCAGCTGGATCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1080
DB 1021 TTTGATGTAATATTTCTAGCAGGAGTAGTAGATGCAAGCATGTCCAGCAATAATA 1080
QY 1081 GTGACGAGGAGTGTGGCTTACCGCTGGAGGAACCCCTACCTGATGCTGCTGCTGCTGCT 1140
DB 1081 GTTTAAGGCGCTGTAGCAACTGCAGGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1140
QY 1141 GAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1200
DB 1141 GAATGCCCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1200
QY 1201 TCTGAGTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1260
DB 1201 TCTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1260
QY 1261 GGAATCGACACCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1320
DB 1261 GGTATTGATACATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1320
QY 1321 CTTGAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1380
DB 1321 CTTGATGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1380
QY 1381 CTGCTGATCTCTTACTA 1397
DB 1381 TTATTGATTTCTTATTA 1397

RESULT 7

AAA97075
ID AAA97075 standard; DNA; 138 BP.
XX
AC AAA97075;
XX
DT 18-DEC-2000 (first entry)
XX
DE G5 synthetic gene synthesis primer 3205.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control;
KW PCR primer; ss.
XX
OS Synthetic.
XX
FN WO200046373-Al.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
PA (CORR) CORNELL RES FOUND INC.
PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX

DR WPI: 2000-506071/45.
 XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
 PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
 PT infection in fish -
 XX Disclosure: Figure 12; 144pp; English.
 XX This invention relates to novel i-antigen polypeptide sequences.
 CC I-antigens or immobilisation antigens are common to a variety of
 CC hymenostomatid ciliates and their expression varies in response to
 CC environmental stimuli. This invention relates to i-antigens in
 CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
 CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
 CC invention includes two polypeptide and polynucleotide sequences for two
 CC antibodies, of 48 and 55 kb. Also included in the invention are
 CC a method for identifying i-antigen polypeptides and polynucleotide sequences
 CC for identifying i-antigen polypeptides using the nucleotide sequences.
 CC An immune response in fish is useful for prophylaxis, treatment or for
 CC controlling i-antigen infection in fish. Polynucleotide or protein
 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX
 SQ Sequence 138 BP; 30 A; 43 C; 32 G; 33 T; 0 other;

Query Match 9.8%; Score 138; DB 21; Length 138;
 Best Local Similarity 100.0%; Pred. No. 7 5e-30;
 Matches 138; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 313 GCTACCGACTACGCTGCTATCATCACCAGGTGTGTGAACCTGCGCATCAACTTCTACAAC 372
 DB 1 CCTACCGACTACGCTGCTATCATCACCAGGTGTGTGAACCTGCGCATCAACTTCTACAAC 60
 QY 373 GAGAACGCTCTCAACTTCAACGCTGGAGCTTCTACCTGTACCGCTGTCTGTGAACCGG 432
 DB 61 GAGAACGCTCTCAACTTCAACGCTGGAGCTTCTACCTGTACCGCTGTCTGTGAACCGG 120
 QY 433 CTGGGAGGAGCTCTGACC 450
 DB 121 GTGGGAGGAGCTCTGACC 138

RESULT 8
 ID AAA97076/C
 XX AAA97076 standard; DNA; 123 BP.
 AC AAA97076;
 XX
 XX 18-DEC-2000 (first entry)
 XX
 XX G5 synthetic gene synthesis primer 3206.
 XX
 KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
 KW white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.
 OS Synthetic.
 XX
 PN HQ200046373-A1.
 XX
 PD 10-AUG-2000.
 XX
 PF 04-FEB-2000; 2000WO-US02962.
 XX
 PR 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.

PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
 XX
 PA (UYGE-) UNIV GEORGIA RES FOUND INC.
 PA (CORR) CORNELL RES FOUND INC.
 PA (CLAR/) CLARK T G.
 PA (DICK/) DICKERSON H W.
 PA (LINT/) LIN T.
 XX
 PI Clark TG, Dickerson HW, Lin T;
 XX WPI: 2000-506071/45.
 XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
 PT multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
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 XX Disclosure: Figure 12; 144pp; English.
 XX This invention relates to novel i-antigen polypeptide sequences.
 CC I-antigens or immobilisation antigens are common to a variety of
 CC hymenostomatid ciliates and their expression varies in response to
 CC environmental stimuli. This invention relates to i-antigens in
 CC Ichthyophthirius multifiliis, a protozoan which is an obligate parasite
 CC of freshwater fish causing ichthyophthiriasis or white spot disease. The
 CC invention includes two polypeptide and polynucleotide sequences for two
 CC antibodies, of 48 and 55 kb. Also included in the invention are
 CC a method for identifying i-antigen polypeptides and polynucleotide sequences
 CC for identifying i-antigen polypeptides using the nucleotide sequences.
 CC An immune response in fish is useful for prophylaxis, treatment or for
 CC controlling i-antigen infection in fish. Polynucleotide or protein
 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained in fish. Sequences AAA97036-A97042,
 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX
 SQ Sequence 123 BP; 25 A; 37 C; 39 G; 22 T; 0 other;

Query Match 8.8%; Score 123; DB 21; Length 123;
 Best Local Similarity 100.0%; Pred. No. 1.5e-25;
 Matches 123; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 430 CGCGTGGGAGGAGCTCTGACCGCTGGAAACGCTGCTACCATCGTGGCTCAGTGTACGCTG 489
 DB 123 CGCGTGGGAGGAGCTCTGACCGCTGGAAACGCTGCTACCATCGTGGCTCAGTGTACGCTG 64
 QY 490 GCTTGTCTCTACCGGAACCGCTCTGGACGAGCGGAGTGACCGAGCTACCTGCGCTCTTTC 549
 DB 63 GCTTGTCTCTACCGGAACCGCTCTGGACGAGCGGAGTGACCGAGCTACCTGCGCTCTTTC 4
 QY 550 ACC 552
 DB 3 ACC 1

RESULT 9
 ID AAA97071
 XX AAA97071 standard; DNA; 117 BP.
 AC AAA97071;
 XX
 XX 18-DEC-2000 (first entry)
 XX
 XX G5 synthetic gene synthesis primer 3201.
 XX
 KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
 KW white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.

XX OS Synthetic.
XX PN WO200046373-A1.
XX PD 10-AUG-2000.
XX PF 04-FEB-2000; 2000WO-US02962.
XX PR 04-FEB-1999; 99US-0118634.
XX PR 02-MAR-1999; 99US-0122372.
XX PR 17-MAR-1999; 99US-0124905.
XX PR 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
XX (CORR) CORNELL RES FOUND INC.
XX (CLAR/) CLARK T G.
XX (DICK/) DICKERSON H W.
XX (LINT/) LIN T.
XX Clark TG, Dickerson HW, Lin T;
XX WPI; 2000-506071/45.
XX Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
XX infection in fish -
XX Disclosure; Figure 12; 144pp; English.
XX This invention relates to novel i-antigen polypeptide sequences.
XX I-antigens or immobilisation antigens are common to a variety of
XX hymenostomatid ciliates and their expression varies in response to
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XX fragments identified in the invention. Sequences AAA97043-A97064
XX (excluding AAA97060) and AAA97071-A97088 represent primers used in the
XX isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
XX AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX Sequence 117 BP; 34 A; 30 C; 26 G; 27 T; 0 other;
Query Match 7.5%; Score 105; DB 21; Length 117;
Best Local Similarity 100.0%; Pred. No. 2.4e-20;
Matches 105; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 1 ATGAGAACACATCCTGGTGATCCTCATCTCTCTGTTTCATCAACACGAGATCAAGTCT 60
DB 13 ATGAAGAACACATCCTGGTGATCCTCATCTCTCTGTTTCATCAACACGAGATCAAGTCT 72
QY 61 GCTAACTGCTCTGGGAAACCGAGACCAACACCGCTGGACAGGTG 105
DB 73 GCTAACTGCTCTGGGAAACCGAGACCAACACCGCTGGACAGGTG 117
RESULT 10
AAA97072/c
ID AAA97072 standard; DNA; 104 BP.
XX AC AAA97072;
XX

DT 18-DEC-2000 (first entry)
XX G5 synthetic gene synthesis primer 3202.
XX Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
XX white spot disease; freshwater fish; immune response; infection control;
XX PCR primer; ss.
XX Synthetic.
XX WO200046373-A1.
XX PD 10-AUG-2000.
XX PF 04-FEB-2000; 2000WO-US02962.
XX PR 04-FEB-1999; 99US-0118634.
XX PR 02-MAR-1999; 99US-0122372.
XX PR 17-MAR-1999; 99US-0124905.
XX PR 27-APR-1999; 99US-0131121.
XX (UYGE-) UNIV GEORGIA RES FOUND INC.
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XX Clark TG, Dickerson HW, Lin T;
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XX multifiliis, useful for prophylaxis and treatment of Ichthyophthirius
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XX and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
XX fragments identified in the invention. Sequences AAA97043-A97064
XX (excluding AAA97060) and AAA97071-A97088 represent primers used in the
XX isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
XX AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX Sequence 104 BP; 21 A; 27 C; 30 G; 26 T; 0 other;
Query Match 7.4%; Score 104; DB 21; Length 104;
Best Local Similarity 100.0%; Pred. No. 4.4e-20;
Matches 104; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 84 GACCAACACCGCTGGACAGGTGGACACCTGGGAAACCCCTGCTAACTGTGTGAACGTGCA 143
DB 104 GACCAACACCGCTGGACAGGTGGACACCTGGGAAACCCCTGCTAACTGTGTGAACGTGCA 45
QY 144 GAAGAAGCTTCTACTACAAACACCGCTGCTGCTTCGCTGCTGGAG 187
DB 44 GAAGAAGCTTCTACTACAAACACCGCTGCTGCTTCGCTGCTGGAG 1

RESULT 11
 ID AAA97073
 XX AAA97073 standard; DNA; 100 BP.
 AC AAA97073;
 XX
 DT 18-DEC-2000 (first entry)
 XX
 DE G5 synthetic gene synthesis primer 3203.
 XX
 KW Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine;
 KW white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.
 XX
 OS Synthetic.
 XX
 PN WO2000046373-A1.
 XX
 PD 10-AUG-2000.
 XX
 PF 04-FEB-2000; 2000WO-US02962.
 XX
 PR 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.
 PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
 XX
 PA (UYGE-) UNIV GEORGIA RES FOUND INC.
 PA (CORR) CORNELL RES FOUND INC.
 PA (CLAR/) CLARK T G.
 PA (DICK/) DICKERSON H W.
 PA (LINT/) LIN T.
 XX
 PI Clark TG, Dickerson HW, Lin T;
 XX
 DR WPI; 2000-506071/45.
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 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained is also useful for treating or
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 CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
 CC fragments identified in the invention. Sequences AAA97043-A97064
 CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX
 SQ Sequence 100 BP; 16 A; 35 C; 24 G; 25 T; 0 other;
 Query Match 7.1%; Score 100; DB 21; Length 100;
 Best Local Similarity 100.0%; Pred. No. 6.2e-19;
 Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
 QY 165 CGCTGCTGCTTTCGCTGGAGCTTCTACCTGTACCCCTTCTCAGAGAGGAGCGC 224

Db 1 CGCTGCTGCTTTCGCTGGAGCTTCTACCTGTACCCCTTCTCAGAGAGGAGCGC 60
 QY 225 TGGAGCTCAGCCTTAACCCCTCCTGCTACCGCTAACCTGGTG 264
 Db 61 TGGAGCTCAGCCTTAACCCCTCCTGCTACCGCTAACCTGGTG 100
 RESULT 12
 AAA97080/C
 ID AAA97080 standard; DNA; 100 BP.
 XX
 AC AAA97080;
 XX
 DT 18-DEC-2000 (first entry)
 XX
 DE G5 synthetic gene synthesis primer 3210.
 XX
 KW Immobilisation antigen; i-antigen; Ichthyophthiriasis; vaccine;
 KW white spot disease; freshwater fish; immune response; infection control;
 KW PCR primer; ss.
 XX
 OS Synthetic.
 XX
 PN WO2000046373-A1.
 XX
 PD 10-AUG-2000.
 XX
 PF 04-FEB-2000; 2000WO-US02962.
 XX
 PR 04-FEB-1999; 99US-0118634.
 PR 02-MAR-1999; 99US-0122372.
 PR 17-MAR-1999; 99US-0124905.
 PR 27-APR-1999; 99US-0131121.
 XX
 PA (UYGE-) UNIV GEORGIA RES FOUND INC.
 PA (CORR) CORNELL RES FOUND INC.
 PA (CLAR/) CLARK T G.
 PA (DICK/) DICKERSON H W.
 PA (LINT/) LIN T.
 XX
 PI Clark TG, Dickerson HW, Lin T;
 XX
 DR WPI; 2000-506071/45.
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 CC vaccines comprising a portion of the amplified product encoding an
 CC antigenic i-antigen polypeptide obtained is also useful for treating or
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 CC fragments identified in the invention. Sequences AAA97043-A97064
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 CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
 CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
 XX

```
SQ      Sequence 100 BP; 22 A; 17 C; 32 G; 29 T; 0 other;
      Query Match      7.1%; Score 100; DB 21; Length 100;
      Best Local Similarity 100.0%; Pred. No. 6.2e-19;
      Matches 100; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 753 GAACAACCTGGGTGGCTCAGAACACCGAGTGTACCAACTCTGCTCTTAACCTTCTACACAA 812
      |||||||
Db 100 GAACAACCTGGGTGGCTCAGAACACCGAGTGTACCAACTCTGCTCTTAACCTTCTACACAA 41

QY 813 CAACGCTCTTAACCTTCAACCTTGGAACTCTTACCTGCTG 852
      |||||||
Db 40 CAACGCTCTTAACCTTCAACCTTGGAACTCTTACCTGCTG 1

RESULT 13
AAA97077
ID AAA97077 standard; DNA; 99 BP.
XX
AC AAA97077;
XX
DT 18-DEC-2000 (first entry)
XX
DE G5 synthetic gene synthesis primer 3207.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control;
KW PCR primer; ss.
XX
OS Synthetic.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
XX
PA (UYGE-) UNIV GEORGIA RES FOUND INC.
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PA (CLAR/) CLARK T G.
PA (DICK/) DICKERSON H W.
PA (LINT/) LIN T.
XX
PI Clark TG, Dickerson HW, Lin T;
XX
DR WPT; 2000-506071/45.
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Disclosure; Figure 12; 144pp; English.
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vaccines comprising a portion of the amplified product encoding an
antigenic i-antigen polypeptide obtained is also useful for treating or
```

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CC preventing I. multifiliis infection in fish. Sequences AAA97036-A97042,
CC and AAA97060, AAA97065 and AAA97089 represent i-antigen genes and gene
CC fragments identified in the invention. Sequences AAA97043-A97064
CC (excluding AAA97060) and AAA97071-A97088 represent primers used in the
CC isolation of the i-antigen gene sequences. Sequences AAB25859-B25889 and
CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ      Sequence 99 BP; 27 A; 29 C; 21 G; 22 T; 0 other;
      Query Match      7.1%; Score 99; DB 21; Length 99;
      Best Local Similarity 100.0%; Pred. No. 1.2e-18;
      Matches 99; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 532 GACTACGTGCGCTCTTTTCCACCGAGTGTGTGAAGTGTGCGCTGAACCTTCTACTACACGGA 591
      |||||||
Db 1 GACTACGTGCGCTCTTTTCCACCGAGTGTGTGAAGTGTGCGCTGAACCTTCTACTACACGGA 60

QY 592 AACACGGAACACACCCCTTTTCAACCCCTGGAAAGTCTCAG 630
      |||||||
Db 61 AACACGGAACACACCCCTTTTCAACCCCTGGAAAGTCTCAG 99

RESULT 14
AAA97074/c
ID AAA97074 standard; DNA; 95 BP.
XX
AC AAA97074;
XX
DT 18-DEC-2000 (first entry)
XX
DE G5 synthetic gene synthesis primer 3204.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control;
KW PCR primer; ss.
XX
OS Synthetic.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
PR 02-MAR-1999; 99US-0122372.
PR 17-MAR-1999; 99US-0124905.
PR 27-APR-1999; 99US-0131121.
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PA (UYGE-) UNIV GEORGIA RES FOUND INC.
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DR WPT; 2000-506071/45.
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CC AAB25893-B25906 represent i-antigen protein and peptide sequences.
XX
SQ Sequence 95 BP; 22 A; 24 C; 30 G; 19 T; 0 other;

Query Match 6.8%; Score 95; DB 21; Length 95;
Best Local Similarity 100.0%; Pred. No. 1.7e-17;
Matches 95; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 242 CTCCTGCTACCGCTAACCTGGTGACCCAGTGTAAAGTGTCTGCTGGAACCGCTA 301
DB 95 CTCCTGCTACCGCTAACCTGGTGACCCAGTGTAAAGTGTCTGCTGGAACCGCTA 36
QY 302 TCGCTGGAGGAGTACCGGACTACGCTGCTATCATC 336
DB 35 TCGCTGGAGGAGTACCGGACTACGCTGCTATCATC 1

RESULT 15
AAA97078/c
ID AAA97078 standard; DNA; 95 BP.
XX
AC AAA97078;
XX
DT 18-DEC-2000 (first entry)
XX
DE G5 synthetic gene synthesis primer 3208.
XX
KW Immobilisation antigen; i-antigen; ichthyophthiriasis; vaccine;
KW white spot disease; freshwater fish; immune response; infection control;
KW PCR primer; ss.
XX
OS Synthetic.
XX
PN WO200046373-A1.
XX
PD 10-AUG-2000.
XX
PF 04-FEB-2000; 2000WO-US02962.
XX
PR 04-FEB-1999; 99US-0118634.
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PR 27-APR-1999; 99US-0131121.
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Clark TG, Dickerson HW, Lin T;
XX
WPI; 2000-506071/45.
XX

Novel i-antigen polypeptides and polynucleotides from Ichthyophthirius
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Query Match 6.8%; Score 95; DB 21; Length 95;
Best Local Similarity 100.0%; Pred. No. 1.7e-17;
Matches 95; Conservative 0; Mismatches 0; Indels 0; Gaps 0;
QY 607 CCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTGCTATCAAGCCTGCTAAGCTG 666
DB 95 CCTTTCAACCCCTGGAAAGTCTCAGTGTACCCCTTGTCTGCTATCAAGCCTGCTAAGCTG 36
QY 667 GCTCAGGCTACCTGGGAAACGACGCTACCATCAC 701
DB 35 GCTCAGGCTACCTGGGAAACGACGCTACCATCAC 1

Search completed: February 16, 2003, 17:00:27
Job time : 221.022 secs

